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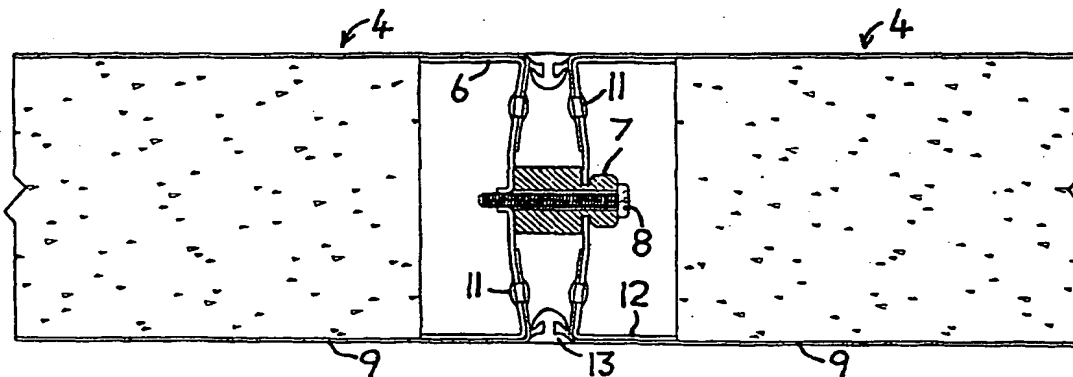
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(54) Title: PARTITION WALL CONSTRUCTION



(57) Abstract: A partition wall panel for constructing a continuous length of prefabricated wall panels (4) has joint posts (6, 12) located at each vertical panel edge. One joint post type (6) includes spaced alignment buttons (7) whilst a second joint post type (12) has spaced slots which are able to be interlocked with the alignment buttons (7). This enables adjacent wall panels (4) to be secured together in good alignment with one another yet the assembly of panels can be easily dismantled when necessary.

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PARTITION WALL CONSTRUCTION

This invention relates to a partition wall construction. It relates particularly to a construction with a jointing means that can serve to form an accurately aligned joint between two prefabricated wall panels.

In the internal fitting of a large working space such as a factory or office building, use is frequently made of a partition wall system since this can allow the internal room areas to be adjusted easily from time to time in order to adapt them to new working arrangements. One popular partition wall system relies on the use of a standard prefabricated wall panel which may be one metre in width and is of a suitable height to fit between the floor and ceiling of the working space to be partitioned. To assemble a partition wall, a continuous floor channel is first fitted to the floor of the space and a similar ceiling channel is fitted to the space ceiling. The prefabricated wall panels are then located in the floor and ceiling channels and assembled side by side with a vertically aligned joint being formed between two adjacent panels. This arrangement is called a progressive panel system since the panels fit together progressively in either direction and the width of the construction can be made as long as may be necessary.

The present invention was devised to provide a rigid joint means capable of being fitted between two wall panels such that the panel edges would be held in an accurate alignment with one another.

According to the invention, there is provided an alignment means for a wall panel, the alignment means comprising a first joint post carrying one or more upstanding alignment buttons, and a second joint post having a slot means positioned such that an alignment button of a said first joint post may be engaged therein.

The slot means may be a double keyhole slot which has a narrow centre section with wider openings at each end.

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Each alignment button may be formed with a rounded entry portion, a waist portion and a broad base portion.

The joint posts may be attached to each long edge of a prefabricated wall panel. Preferably, a first long edge of a wall panel carries a first joint post which extends along substantially the full length of the said edge. A second long edge of the wall panel may carry a said second joint post.

The invention also comprises a prefabricated wall panel having first and second joint posts carried thereon. It further comprises a wall panel installation including two or more wall panels having the alignment means.

By way of example, a particular embodiment of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is an elevational view of a partition wall construction,

Figure 2 is a partial cross-sectional view taken along the line II-II on Figure 1,

Figure 3 is a detail of the alignment button construction for the first joint post, and,

Figure 4 shows a double keyhole slot part of the second joint post.

As shown in Figure 1, a partition wall assembly 1 comprises a floor channel 2 fixed to a floor area of a space in which the internal wall is required to be constructed and a ceiling channel 3 fixed to the ceiling. Between the floor channel 2 and ceiling channel 3, a wall panel 4 is positioned vertically and further wall panels 4 are inserted alongside the first.

Figure 2 is a cross-sectional view of the joint area and this depicts at the left hand side a wall panel 4 carrying at its right hand side a first joint post 6. The joint post 6 is in the form of a channel shape being pressed out of steel. The post 6 is provided with an alignment button 7 which is secured to the post 6 by a screw fixing 8. The panel 4 is manufactured from a fibrous sound absorbent material and, for giving a pleasant external appearance to the

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panel, this is covered on both sides with a panel skin sheet 9. At the edge of the panel 4, the panel skin sheet 9 is folded over a corner of the joint post 6 and secured with a rivet 11. This provision ensures that the panel 4 surface is given a smooth appearance and that the edge of the joint post 6 is concealed by the presence of the skin sheet 9.

At the right hand side of Figure 2, a second wall panel 4 carries at its left hand edge a second joint post 12. This also is of a channel shape and is formed of steel. A panel skin sheet 9 on the second wall panel 4 is similarly folded over a corner of the joint post 12 and is secured by a rivet 11.

The second joint post 12 is additionally provided with a longitudinally-directed slot (not shown) and part of the alignment button 7 is seen to have passed through this slot so that the first and second joint posts 6,12 have been secured together. This locking arrangement thus serves to hold the first and second wall panels 4 together side by side so that a continuous wall area is provided. A space at the edge of the first and second joint posts is filled with a length of a PVC joint seal strip 13 which is pressed into the gap. The resulting joint between the two panels is then seen to be flat and this thus enables a partition wall having a smooth and pleasant appearance to be constructed.

Figure 3 depicts the alignment button 7 in cross-sectional and end elevation views. The button 7 is seen to be provided with a rounded entry portion 14, a waist portion 16 and a broad base portion 17. The entry portion 14 is able to be inserted into an end opening to a slot on the second joint post. The button 7 may then be moved relative to the slot so that the narrow waist portion 16 will be brought to rest at a narrow region of the slot.

Figure 4 shows part of the second joint post 12 which carries a double keyhole slot 18. The slot 18 is seen to be provided with a narrow centre section 19 and a wide opening 21 at each end. The dimensions of the slot 18 are such that the entry portion 14 of the

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alignment button 7 may be inserted into the wide opening 21 at either end of the slot 18. The alignment button 7 carried on the first joint post 6 may then be moved parallel to the slot 18 so that the waist portion 16 enters the narrow centre section 19 of the slot. The alignment button 7 will then be locked in the centre section 19 and this serves to hold the first joint post 6 and the second joint post 12 together. Gravitational forces on the two adjacent wall panels will act to retain the alignment button 7 in the centre section 19 of the slot. However, if either of the two connected panels should be lifted upwards for a short distance, the alignment button 7 will be moved or else the slot will be moved relative to the alignment button 7. The button 7 will thereby be displaced to one end of the slot 18 and it will be possible to withdraw the button to enable the two panels to be separated from one another.

In one particular embodiment that was constructed, the alignment button 7 had a waist portion 16 that was 6.5 millimetres in diameter and the slot narrow centre section 19 was 7.0 millimetres in width. The distance between the centres of the wide openings 21 of the slot was 40.0 millimetres. Therefore, from the position in which the button 7 is locked in the narrow centre section 19 of the slot, a movement of twenty millimetres of the button relative to the slot 18 will cause the button to be moved to the slot end and enable the first and second joint parts to be separated from one another. Similarly, if the slot is moved relative to the button, a movement of twenty millimetres will also move the button to the slot end and allow the joint posts to be separated. Exactly similar relative movements between the button and the slot will be required to cause the two wall panels to become connected to one another.

In the construction of a prefabricated wall panel for the partition wall construction, each of the standard wall panels to be used will be provided with a first joint post 6 on the right hand edge of the panel and a second joint post 12 at the left hand edge. A suitable skin

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sheet 9 material to provide a required surface appearance and texture to the panel will be folded over the edges of the joint posts and secured as already described. To begin a wall panel installation, the floor and ceiling channels 2,3 are fixed initially and the first wall panel may then be pushed into the ceiling channel 3 and the base of this panel then be inserted into the floor channel 2. The panel will then be retained in the required position in a vertical attitude.

After the positioning of the first wall panel, the construction method of the invention allows further panels to be connected moving in a direction from left to right or alternatively from right to left of the original panel.

To progress from left to right, with the first panel in place, a second panel is added on the right hand side of this leaving a gap of approximately ten millimetres. The second panel is then lifted a height of twenty millimetres and slid to the left so that the button 7 will become located in the upper opening 21 of the slot 18. The second panel can then be lowered the distance to which it had been lifted and the button 7 will slide into the narrow centre section 18 causing the two panels to become connected together.

To progress from right to left, with the first panel in place, a second panel is added on the left hand side of this leaving a gap of ten millimetres. The second panel is then lifted a distance of twenty millimetres and slid to the right so that the bottom opening 21 of the slot 18 locates onto the button 7. The second panel can then be lowered into its final position and the two panels will have become connected together.

To complete the installation, the PVC joint seal strip 13 will be fixed to both sides of the gap between the panels.

A partition wall construction assembled with the jointing means of the invention is able to be progressively dismantled in the same order of panels as the order in which it was

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built. This is a facility that is not available with some other progressive panel systems since these can only be dismantled in the reverse order of the assembly operation.

The partition wall construction of the invention has been found to provide an easily assembled wall structure that has an unobtrusive joint between the separate wall panels.

When the wall arrangement is required to be changed, the panels are readily separated again and may be reused as necessary.

The foregoing description of an embodiment of the invention has been given by way of example only and a number of modifications may be made without departing from the scope of the invention as defined in the appended claims. For instance, the number of fixings provided by the button and slot connection means in the joint posts is capable of being varied. One arrangement that has been found satisfactory is to provide two button fixings for each metre in height of the joint post.

Claims

- 1 A wall panel for a partition wall, each panel unit comprising a prefabricated wall panel body carrying joint posts on two edges which are intended to be linked to corresponding posts on adjacent panels to provide a continuous wall construction, in which a first joint post carries one or more upstanding alignment buttons and a second joint post includes slot means positioned such that an alignment button of said first joint post may be engaged therein.
- 2 A wall panel as claimed in Claim 1, in which each joint post includes a concave outer surface at a place where it is required to support an alignment button or a slot means.
- 3 A wall panel as claimed in Claim 2, in which the concave surface extends for the full length of each joint post.
- 4 A wall panel as claimed in Claim 2 or 3, in which the concave outer surface additionally provides support means to which a panel skin sheet may be attached.
- 5 A wall panel as claimed in any one of Claims 1 to 4, in which the slot means includes a keyhole slot having a wide and a narrow opening.
- 6 A wall panel as claimed in Claim 5, in which the keyhole slot has a double keyhole shape with a wide opening at each end.
- 7 A wall panel as claimed in any one of Claims 1 to 6, in which the alignment button has a rounded entry portion which is supported on a narrow waist portion.
- 8 A wall panel as claimed in any one of Claims 1 to 7, in which the alignment button includes a through hole by which it is secured by fixing means to the relevant joint post.
- 9 A wall panel as claimed in any one of Claims 1 to 8, in which the panel has two alignment buttons provided for each metre in height of the joint post.
- 10 A method of constructing a prefabricated partition wall panel substantially as hereinbefore described.

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- 11 A partition wall panel substantially as hereinbefore described with reference to any one of the accompanying drawings.

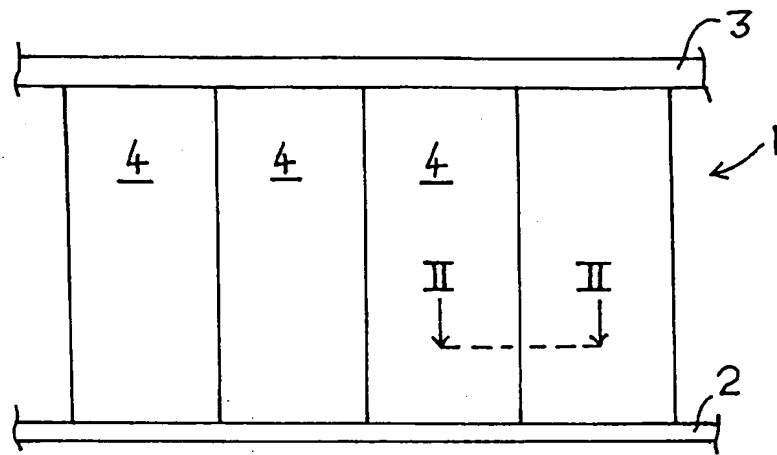


Fig. 1

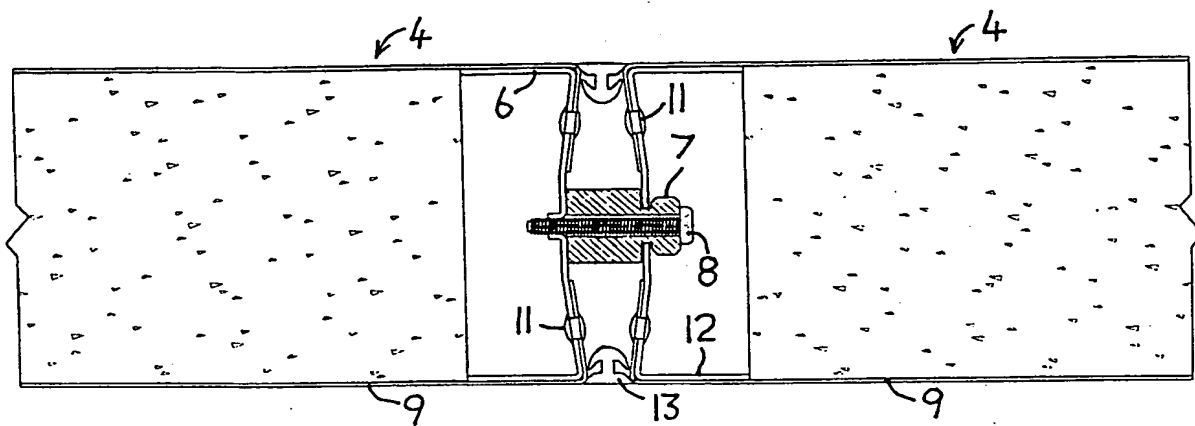


Fig. 2

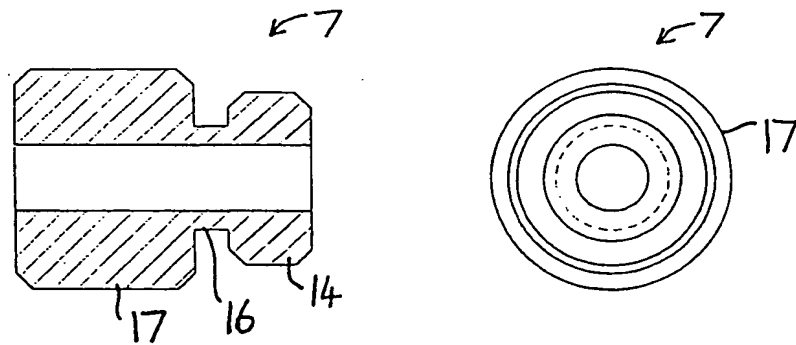


Fig. 3

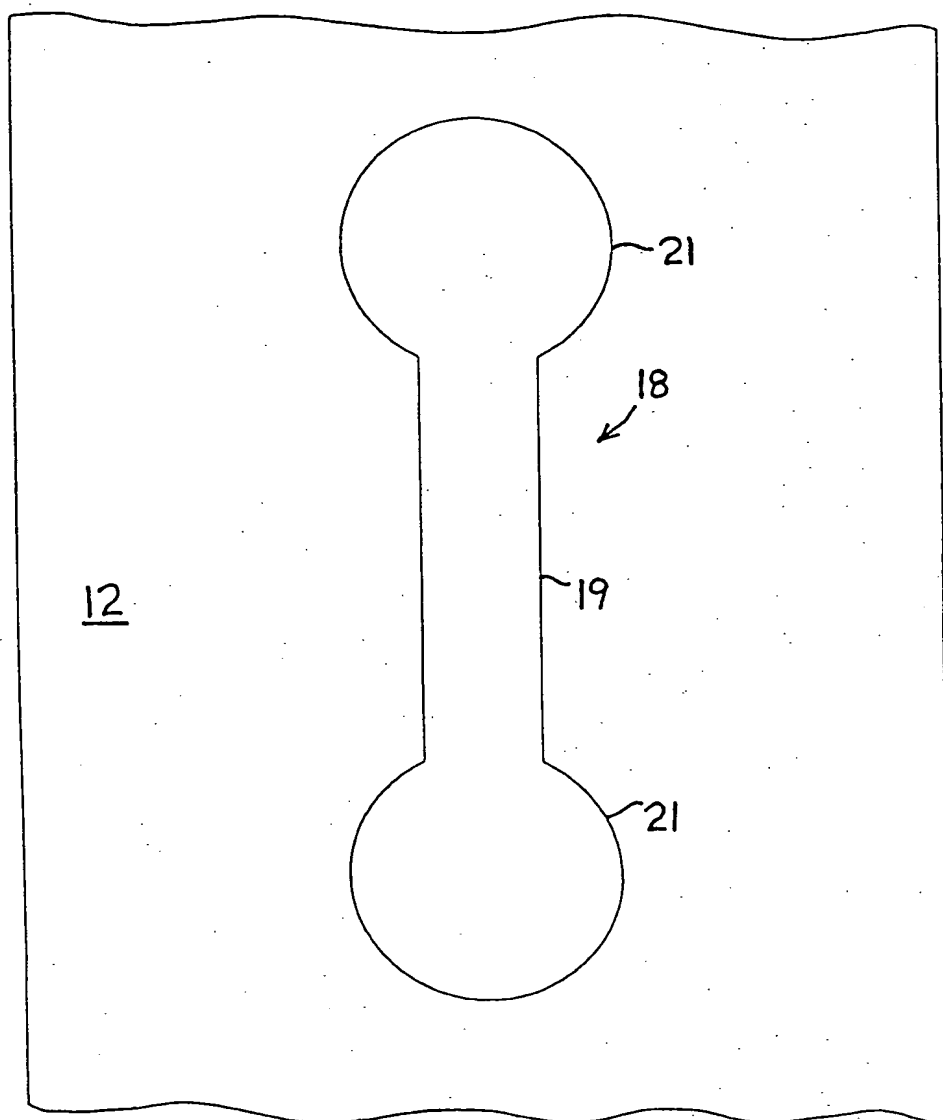


Fig. 4

INTERNATIONAL SEARCH REPORT

Int lional Application No
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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 E04B2/74		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 E04B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 298 14 432 U (CHANG CHING CHANG) 5 November 1998 (1998-11-05) page 3, line 24 -page 4, line 22 page 6, line 6 -page 7, line 2; figures 1-4,6 ---	1-7,9
X	US 5 687 859 A (MILLER MELVIN M) 18 November 1997 (1997-11-18) column 4, line 31 -column 5, line 37; figures ---	1-5,7-9
X	US 5 561 960 A (MINNICK LARRY A ET AL) 8 October 1996 (1996-10-08) column 5, line 48 -column 7, line 10; figures 4-10 -----	1,5-9
<div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. </div>		
<div style="display: flex;"> <div style="flex: 1;"> <p>* Special categories of cited documents :</p> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*G* document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search <div style="text-align: center; font-weight: bold;">23 January 2001</div>		Date of mailing of the international search report <div style="text-align: center; font-weight: bold;">30/01/2001</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer <div style="text-align: center; font-weight: bold;">Porwoll, H</div>

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/04124

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E04B 2/72

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E1D DF112 DLEKN2 DLEQW2 D193 D523

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GB 2142670 A GB 2093085 A GB 1324701 A
GB 0991752 A EP 0194209 A1 WO 81/01027 A1

(58) Field of search
UK CL (Edition K) E1D DF112 DLEQWNV DLEQWSV

(54) Sealed panel connector

(57) A connector for panels comprising two interconnecting elements (5a, 5b) having two internal seals (8a, 8b). The shape of each of the two elements is preferably identical to that of the other rotated through 180° and consists of a projecting portion (6a, 6b) and a recess (7b, 7a), the recess of each element receiving the projecting portion of the other. The panels are secured to a framework by bolts 4.

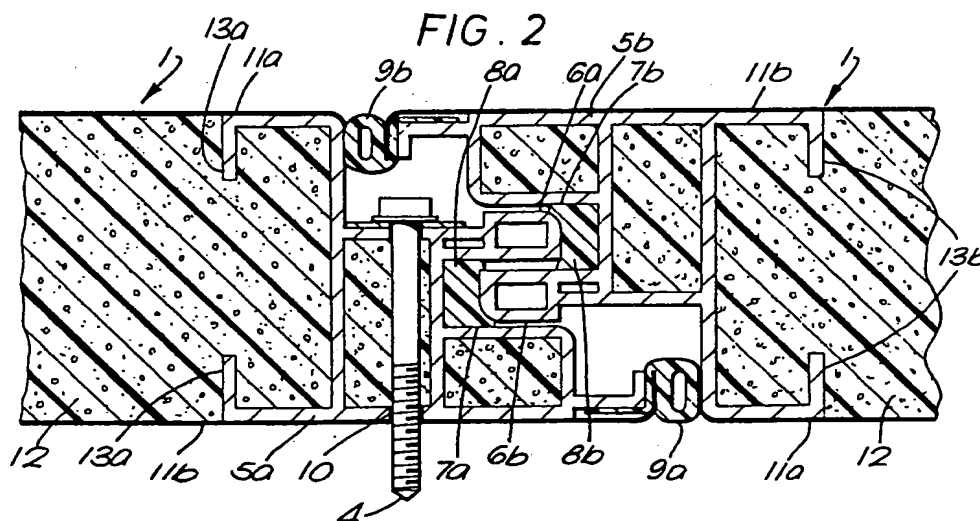


FIG. 1a

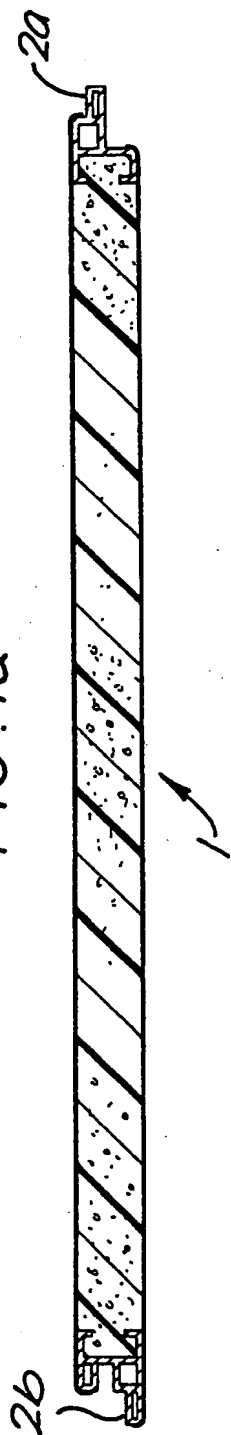


FIG. 1b

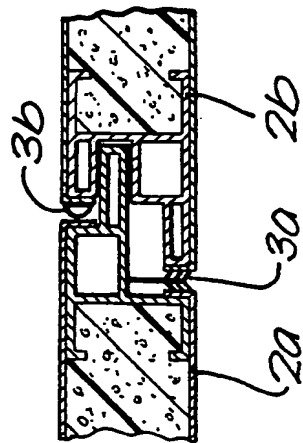


FIG. 1c

